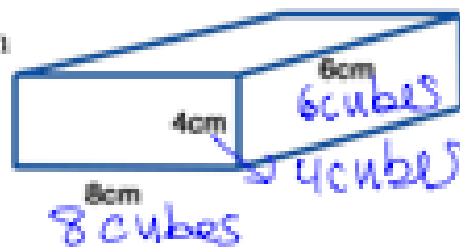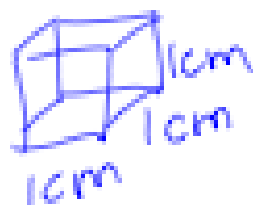Name_____Date_____

Volume: Finding the Number of Cubes in a Prism

Example 1:

The right rectangular prism-shaped box shown is filled with one-centimeter cubes.

How many one-centimeter cubes fit within the prism?

$\ell = 8 \div 1 = 8$ cubes

$w = 6 \div ? = 96$ cubes

$h = 4 \div 1 = 4$ cubes

$8 \times 6 \times 4$

48×4

192

6cm
6 cubes
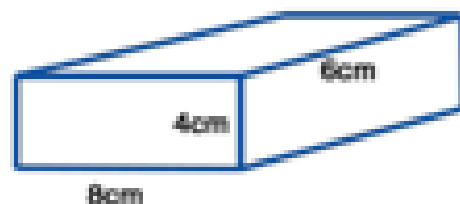4cm
4 cubes
8cm
8 cubes

What is meant by one-centimeter cubes?

There are 192 - 1cm cubes in the prism.

1cm
1cm
1cm

Example 2:

The right rectangular prism-shaped box shown is filled with two-centimeter cubes.

How many two-centimeter cubes fit within the prism?

2cm
2cm
2cm

6cm
4cm
8cm

What is meant by two-centimeter cubes?

$\ell = 8 \div 2 = 4$ cubes

$w = 6 \div 2 = 3$ cubes

$h = 4 \div 2 = 2$ cubes

$4 \times 3 \times 2$

12×2

24

There are 24 - 2cm cubes in the prism.

Example 3:

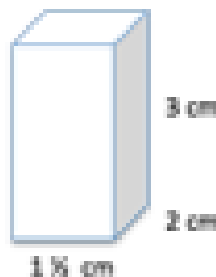The right rectangular prism-shaped box shown is filled with ½-centimeter cubes.

How many $\frac{1}{2}$-centimeter cubes fit within the prism?

$l = 1\frac{1}{2} \div \frac{1}{2} = \frac{3}{2} \times \frac{2}{1} = 3 \text{ cubes}$

$w = 2 \div \frac{1}{2} = \frac{2}{1} \times \frac{2}{1} = 4 \text{ cubes}$

$h = 3 \div \frac{1}{2} = 3 \times 2 = 6 \text{ cubes}$

$3 \times 4 \times 6 = 72$

There are 72 - ½ cm cubes in the prism.

What is meant by ½-centimeter cubes?

3 cm

2 cm

1 ½ cm

Example 4:

Small cubes with edge lengths of ¼ inch will be packed into the right rectangular prism shown.

How many small cubes are needed to completely fill the right rectangular prism?

What is meant by cubes with edge length of ¼ inch?

2 in

1 ½ in.

2 ½ in.

$l = 2\frac{1}{2} \div \frac{1}{4} = \frac{5}{2} \times \frac{4}{1} = 10 \text{ cubes}$

$w = 1\frac{1}{2} \div \frac{1}{4} = \frac{3}{2} \times \frac{4}{1} = \frac{6}{1} = 6 \text{ cubes}$

$h = 2 \div \frac{1}{4} = 2 \times 4 = 8 \text{ cubes}$

$10 \times 6 \times 8$
60×8
480

There are 480 - ¼ cm cubes in the prism.